TULANE LAW SCHOOL
TULANE ENVIRONMENTAL LAW CLINIC

September 4, 2020

By email to: McQueen.ken@epa.gov and Gray.david@epa.gov and U.S. Mail
Mr. Ken McQueen, Regional Administrator
Mr. David Gray, Deputy Regional Administrator
U.S. Environmental Protection Agency, Region 6
1201 Elm Street, Suite 500
Mail Code ORA
Dallas, TX 75270-210

Re: Objection to Discontinuation of EPA Chloroprene Community Monitoring

Dear Mr. McQueen and Mr. Gray:

On August 18, 2020, the EPA sent a letter to the Louisiana Department of Environment Quality (LDEQ) indicating that the EPA would discontinue its community monitors for chloroprene in St. John the Baptist Parish at the end of September 2020. These community monitors have been critically important for understanding the public health risks around Denka, and we are deeply appreciative of EPA's multi-year commitment to providing chloroprene data to the residents of St. John the Baptist Parish.

However, on behalf of the Concerned Citizens of St. John, we are extremely concerned about EPA's imminent plan to discontinue community monitoring of chloroprene levels, which would leave SPod monitors as the only source of data in EPA's St. John the Baptist Parish chloroprene monitoring network. SPods may not be suitable for this application, and EPA has not released any data/reports to validate this use of SPod monitors. In fact, guidance from the EPA scientists who developed SPods explicitly states that these sensors should not be used for ambient air monitoring.[1] While it is possible that EPA has modified the SPod technology to make it suitable for ambient chloroprene monitoring in St. John, to our knowledge, there is no public information to indicate that such modifications have been made. Equally concerning, EPA has not been clear about the limitations of SPod technology in its public communications with St. John stakeholders.

The SPod is a relatively new technology that continuously monitors total VOCs using a photoionization detector (PID) and collects a canister sample for laboratory

[1] Thoma, E. SPod Progress Summary Slides. Presented at EPA SPod Share Site, RTP, NC, June 08, 2016. Page 7. https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NRMRL&direntryid=335108

analysis when a VOC plume is detected (i.e. when total VOC [tVOC] is above a certain trigger threshold). As EPA has described, the main advantage of SPods is that these monitors can detect a plume of VOCs and locate its source.[2] To our knowledge, **SPods have never been used to monitor ambient chloroprene concentrations, and there is no evidence that SPods are suitable for this purpose**. In fact, this application of SPod monitors appears to contradict guidance provided by the EPA scientists who developed SPods. Specifically, these scientists indicated that "*The current [SPod] design works only in 'near-fenceline' applications where localized source emission plumes may be present.*"[3] Yet, according to the project's Quality Assurance Plan, two of the St. John SPod monitoring sites are over 1 mile from Denka.[4] To our knowledge, there is no evidence that SPods are suitable for ambient air monitoring over a mile from the emissions source.

We are particularly concerned that EPA has not disclosed the ambient concentration of chloroprene that (by itself) would be required to trigger the SPod. For public health planning purposes, it is essential to release this information because this value represents the maximum possible ambient chloroprene concentration that would go undetected by the SPod monitors. The SPod operation manual indicates that the PID has a lower detection limit of 10 ppb.[5] This is equivalent to a chloroprene concentration of approximately 36 µg/m^3 (based on EPA's conversion formula[6]), which is nearly 200-fold greater than the concentration that EPA associates with a 100 in 1 million cancer

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[2] Thoma, E. SPod Progress Summary Slides. Presented at EPA SPod Share Site, RTP, NC, June 08, 2016. Page 2. https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NRMRL&direntryid=335108

[3] Thoma, E. SPod Progress Summary Slides. Presented at EPA SPod Share Site, RTP, NC, June 08, 2016. Page 2. https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NRMRL&direntryid=335108

[4] Eastern Research Group Inc. Quality Assurance Project Plan for SPod Monitoring at the Denka Performance Elastomer Facility in LaPlace, Louisiana, page 18 of 138. https://www.epa.gov/sites/production/files/2020-03/documents/spod_monitoring_qapp_final_3-_2020_address_redacted_002.pdf

[5] Eastern Research Group Inc. Quality Assurance Project Plan for SPod Monitoring at the Denka Performance Elastomer Facility in LaPlace, Louisiana, page 91 of 138. https://www.epa.gov/sites/production/files/2020-03/documents/spod_monitoring_qapp_final_3-_2020_address_redacted_002.pdf.

[6] Memo from John Vandenberg, Director, Research Triangle Park Division, National Center for
Environmental Assessment, Office of Research and Development, EPA, to Wren Stenger,
Division Director, Multimedia Planning and Permitting Division, EPA Region 6, "EPA's Integrated Risk Information System (IRIS) Assessment of Chloroprene," dated May 25, 2016. https://19january2017snapshot.epa.gov/sites/production/files/2016-06/documents/memo-iris-chloroprene052516.pdf

risk (0.2 μg/m3). [7] This detection limit is also above EPA's Reference Concentration for Inhalation Exposure (RfC) of 20 μg/m3, meaning that deleterious non-cancer effects can be expected above this concentration.[8] While these thresholds assume a lifetime of exposure, EPA must consider the community's history of exposure to chloroprene concentrations far above these thresholds, which may result in increased susceptibility.

Given the high chloroprene concentration that would be required to trigger the SPod, the EPA's use of these sensors for ambient monitoring in St. John appears to be premised on the assumption that chloroprene spikes are correlated with total VOC spikes (i.e. other VOCs present with chloroprene would trigger the monitor). However, we are not aware of any evidence that ambient chloroprene concentrations are correlated with ambient tVOC concentrations at the St. John monitoring sites. In fact, a brief review of Denka's monitoring data for chloroprene and other VOCs (1,3-butadiene, benzene, ethylbenzene, toluene, and xylene) suggests that ambient chloroprene concentrations are **unrelated** to ambient tVOC concentrations at St. John monitoring sites.[9]

EPA has used SPod monitors in other industrialized communities, where the agency conducted extensive, longer-term studies to validate the use of this "prototype" technology.[10] For example, EPA has conducted extensive, longer-term (i.e. 1-2 years) field testing of SPod monitors alongside conventional monitors in south Philadelphia and Rubbertown, Kentucky, to better understand stochastic industrial sources (SIS) of emissions (i.e. unpredictable emission spikes).[11] This is the same objective of EPA's St. John SPod monitoring, which aims to "evaluate the feasibility of each sampling location for SIS detection and the impact of proximity of sampling location to the emissions

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[7] Following EPA's formula: Concentration (ppb) = 24.45 × concentration (μg/m3) / molecular weight. See page 2 at https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.files/fileid/14285#:~:text=Therefore%2C%201%20g%2Fm3%20%3D,which%20is%20about%201%20ppb. Chloroprene has a molecular weight of 88.5365 g/mol.

[8] EPA Integrated Risk Information System (IRIS) Chemical Risk Assessment for Chloroprene. Sep 30, 2010. https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/1021_summary.pdf

[9] For example, see Feb 2020 DPE Fenceline Monitoring Report, Mar 17, 2020. EDMS Doc No. 12177156.

[10] Thoma et al. 2019. Rubbertown Next Generation Emissions Measurement Demonstration Project. *International Journal of Environmental Research and Public Health*. 16, 2041. Page 2 of 19. doi:10.3390/ijerph16112041 https://www.tricorntech.com/papers/2019-IJURPH-%20US%20EPA%20ORD-NGEM%20Poject.pdf

[11] *Id.* and Thoma, E. SPod Progress Summary Slides. Presented at EPA SPod Share Site, RTP, NC, June 08, 2016. Pages 17-34. https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NRMRL&direntryid=335108

source."[12] Why has EPA pursued a more robust research approach for SIS detection in Rubbertown and Philadelphia compared to St. John?

EPA's Quality Assurance Plan for this project indicated that "the data gathered in this [initial] phase will be processed and used to assess the sampling equipment performance..."[13] EPA should release these data publicly - before moving on to the next phase of the project if possible - particularly since the agency previously committed to sharing SPod data: "Results from the air canister samples collected by the SPod monitoring system will be posted when they become available."[14]

Finally, we are concerned that EPA has not accurately conveyed the limitations of SPod monitors in its communications with community members and decision-makers. For example, in the August 25, 2020, phone meeting of Environmental Justice stakeholders for EPA Region 6, participants were initially informed that SPods are triggered to collect a sample any time chloroprene is detected. Yet, as was subsequently acknowledged in the meeting, SPods do not measure chloroprene and are not triggered by the detection of chloroprene. Rather, SPods measure total VOCs using a photoionization detector (PID), which is much less sensitive than laboratory-based testing. At the same August 25 meeting, Dr. Kimberly Terrell (TELC Director of Community Outreach and Staff Scientist) asked what minimum ambient concentration of chloroprene would be required to trigger the SPods. The EPA staff on the call did not have the answer to this question, and, as of today, EPA has not released this trigger concentration.

EPA must recognize that, in the context of chloroprene monitoring, false negative data can be extremely detrimental to the residents of St. John the Baptist Parish. A monitor that can only detect chloroprene spikes above ~35 $\mu g/m^3$ may do more harm than good because it provides a false sense that chloroprene spikes are not occurring when ambient concentrations are as high as 35 $\mu g/m^3$. Further, the public may not understand this point because low concentrations of chloroprene can be reported from canister analysis in situations when the PID is triggered by high concentrations of other VOCs. For example, imagine the following two scenarios. In Scenario A, there is 50 ppb benzene and 2 ppb chloroprene at the monitoring site. In Scenario B, there is 2 ppb benzene and 2 ppb chloroprene at the monitoring site. Even though the same concentration of chloroprene is present in both scenarios, chloroprene would not be detected in Scenario B because the tVOC concentration would be inadequate to trigger canister sampling (based on the lower PID detection limit in the operation manual). We are concerned that EPA has not clearly communicated this point and has instead left the impression that the SPod is triggered by any chloroprene spike.

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[12] Eastern Research Group Inc. Quality Assurance Project Plan for SPod Monitoring at the Denka Performance Elastomer Facility in LaPlace, Louisiana, page 17 of 138. https://www.epa.gov/sites/production/files/2020-03/documents/spod_monitoring_qapp_final_3-_2020_address_redacted_002.pdf

[13] *Id.* Page 21 of 138.

[14] https://www.epa.gov/la/laplace-louisiana-epa-response

At a minimum, if EPA maintains its plan to discontinue the community monitors, we urge you to consider alternatives with less potential to yield false negative data. For example, EPA could scale back the number of SPod monitors in order to continue operation of community monitors. Alternately, EPA could place the SPod monitors adjacent to Denka's monitors, in order to generate comparative data. Regardless, EPA should provide community members with a fact sheet about the limitations of the SPod monitors that clearly states the maximum concentration of chloroprene that by itself (i.e. with no other VOC present) would trigger canister sampling at each Spod monitoring site.

Though Denka has recently announced continuation of its community monitoring program through 2021, Denka's monitoring network has failed to detect chloroprene spikes detected by EPA's monitoring network. For example, a spike of 24.1 $\mu g/m^3$ detected at EPA's Chad Baker site on January 18, 2020, was not detected by Denka's monitors. Rather, the highest concentration of chloroprene detected by Denka in January 2020 was a spike of 3.7 $\mu g/m^3$ at the Edgard site on January 15, 2020. Further, there is no evidence that Denka collects samples during times of average or above-average production. In fact, Denka does not collect samples on an exact schedule; rather the company appears to collect samples once every 4-6 days, leaving open the possibility that the company can schedule sampling to coincide with periods of relatively low production. While Denka reports *monthly* production rates, it does not provide information about daily production rates. Given that there is an incentive to report lower chloroprene concentrations, it is essential that independent monitoring be conducted to ensure that sampled chloroprene concentrations are representative of ambient chloroprene concentrations.

Given the above concerns, it is essential to public health that EPA continue to operate its community monitors in St. John the Baptist Parish. We recognize that the type of monitoring that EPA has provided is unavailable to most communities and the EPA has limited funding; however residents of St. John face an **unmatched** public health risk from air pollution based on EPA's own data.[15] Specifically, the total air-pollution-related cancer risk for eastern Reserve (i.e. the census tract that includes the 5th Ward Elementary School) is the **highest in the United States** by a wide margin - nearly double the value of the next highest census tract.[16] Further, this cancer risk is **more than 4,600% higher** than the average for Region 6 states[17] and more than

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[15] The following statistics are based on EPA's 2014 National Air Toxics Assessment, specifically the "*2014 NATA natl cancer risk by source group (XLS)*" file downloaded Sep 2, 2020 from https://www.epa.gov/national-air-toxics-assessment/2014-nata-assessment-results#emissions.

[16] 1,505.1 excess cancer cases per million people for census tract 22095070800 (i.e. eastern Reserve) compared to a corresponding value of 808.7 for the next highest tract (22089060100), located in St. Charles Parish.

[17] Alternately described as a 47-fold difference; 1,505.1 excess cancer cases per million compared to a corresponding value of 32.0, the latter representing the overall average

2,800% higher than Louisiana overall.[18] Six of the 10 census tracts with the highest cancer risks across the entire United States are located in St. John the Baptist Parish – a staggering statistic, given that there are nearly 80,000 census tracts in the U.S. – and every census tract within St. John Parish is in the 99.9th percentile for cancer risk from air pollution in the U.S.[19]

Given the immense, unparalleled public health risk and the above concerns about SPod monitors, we request that EPA continue to operate its community monitors through 2021. We additionally request that EPA publish a fact sheet that details the limitations of the SPod monitors for this application and provide the ambient concentration of chloroprene that would be required to trigger the SPod at each monitoring location. Further, we request that EPA instruct Denka, or require DEQ to instruct Denka, to release *daily* production data, to enable independent verification that sampled concentrations are representative of ambient concentrations. We would be pleased to discuss these issues further. Thank you.

Sincerely,

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for Region 6, based on averaging all county (or parish) averages for all Region 6 states (i.e. Louisiana, Texas, Oklahoma, Arkansas, and New Mexico).
[18] Alternatively described as a 29-fold difference; 1,505.1 excess cancer cases per million compared to a corresponding value of 51.6 for Louisiana overall.
[19] Based on the 2014 National Air Toxic Assessment.

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